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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09 462,024	02 03 2000	WERNER RAHMFELD	3245-710PUS	4586

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[REDACTED] EXAMINER

KERNIS, KEVIN P

ART UNIT	PAPER NUMBER
1725	i

DATE MAILED: 05 20 2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/462,024	RAHMFELD, WERNER
	Examiner	Art Unit
	Kevin P. Kerns	1725

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 31 March 2003.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 11-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 11-20 is/are rejected.
- 7) Claim(s) 14 and 16 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claims 14 and 16 are objected to because of the following informalities: in claim 14, line 18, "=" should be added after the 2nd instance of "L". In claim 14, 6th line from the end of the claim, "a" should be added before "strand". In claim 16, 5th line, "contours" should be changed to "contour", and "and" should be changed to "an" before "S-shaped". Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
3. Claims 11-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "mouth region" in claim 11 (step d) is an unclear term which renders the claim indefinite. It is unclear to what location the "mouth region" is referring (the mouth of the nozzle or the mold?).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

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the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 11-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Streubel et al. (US 4,811,779) in view of Schrewe (US 4,955,428).

Streubel et al. disclose a mold for the continuous casting of a thin steel strip (of predetermined convexity) that includes a molten central region surrounded by a progressively solidified shell (in the casting direction, as shown by strand shell formation initializing zone 9), in which the mold includes broad side walls (1,2), narrow side walls (3,4) adjustable by screws 8, a pouring tube 10 (immersion nozzle) located therein, coolant channels (5,6,7), such that the mold contains upper (a,a'), middle (b,b'), and lower (c,c') sections (abstract; column 1, lines 6-15; column 2, lines 17-59; column 3, lines 5-52; column 4, lines 1-10; and Figures 1-3). As shown in Figures 1 and 2, the broad side walls (1,2) contain three planar surface portions (including a central portion in Figure 1), with a conically tapering region (section b,b' of Figure 2), in which the planar surfaces (as well as the slab to be cast) are conically tapered (transitional region) in the length section b,b' to a value that is between 40% to 60% of the total length of the

mold (as given by the length $a+b+c$, $a'+b'+c'$), ending in a tip ($a+b$, $a'+b'$) between the ratios of 0.5 to 0.8 with respect to the total length of the mold ($a+b+c$, $a'+b'+c'$) and including an angle of slight tapering (less than 5 degrees in Figure 3) as well as a curvilinear (S-shaped) region on the right side of Figure 2 in the vertically descending region (column 3, lines 15-47; and Figures 1-3). Although rollers are present below continuous casting machines beneath the pouring/mold region, Streubel et al. do not disclose the plurality of supporting and guiding rollers, including split rollers, that are located beneath the mold exit region.

However, Schrewe discloses a device and process for continuous casting of slabs with a thickness below 80mm (thin slabs), in which the device includes an immersion nozzle (casting spout and pipe 2) protruding into a laterally adjustable mold 3 with broad and narrow side walls defining the slab 7 to be cast (Figures 2 and 3), a casting container 1 holding a supply of molten metal that forms a slab 7 that partially solidifies into a cast slab with an outer shell and a molten inner region (Figures 1 and 4-6), and a plurality of supporting and guide rollers (8,9) for guiding the slab (Figure 1), in which a plurality of (central and side, including tapering) parallel split rollers (24-26 and 29-31, in Figures 5 and 6), are arranged on a side of the slab, such that the cast slab is subject to forces impinged by the plurality of split rollers, forming a crowned, conically shaped slab surface 27 (abstract; column 1, lines 4-21 and 53-68; column 2, lines 1-57; column 3, lines 3-60; column 4, lines 1-12; and Figures 1-7). Mold 3 (in the area extending below the nozzle 2) has outwardly bulging cross-sections (12,13), in conjunction with side walls 14, establish the casting dimensions (column 3, lines 18-28;

and Figures 2 and 3). As shown in Figures 5 and 6, crowned shaped slabs are formed by a plurality of adjacent rollers, arranged in a linear, parallel manner and further including tapered, or transitional, (conical) rollers in Figure 6, forming an angle to one another in both figures (column 3, lines 47-60; column 4, lines 1-2; and Figures 5 and 6). The mouth (opening) of the immersion nozzle is within the range of 0.3 to 0.5 of the distance between the mold broad face/side parts, approximately 0.3 as measured to scale (Figures 2 and 3). The plurality of supporting, guiding, and split rollers are advantageous for matching the transition surfaces to subsequently form a crowned, conically shaped slab surface of high quality to a thickness below 80 mm (column 1, lines 53-56; column 2, lines 23-31; column 3, lines 47-60; and column 4, lines 1-12).

It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to modify the mold for the continuous casting of a thin steel strip, as disclosed by Streubel et al., by using the plurality of supporting and guiding rollers (including split rollers) that are located beneath the mold exit region, as taught by Schrewe, in order to match the transition surfaces to subsequently form a crowned, conically shaped slab surface of high quality to a slab thickness below 80 mm (Schrewe; column 1, lines 53-56; column 2, lines 23-31; column 3, lines 47-60; and column 4, lines 1-12).

Response to Arguments

7. The examiner acknowledges the applicant's amendment (paper #19) received by the USPTO on March 31, 2003. The applicant's amendment has overcome prior

objections to the abstract and claims, although new claim objections have been raised by the applicant's changes to claims 14 and 16 (see paragraph 1 above). The 35 USC 112, 2nd paragraph rejections (with the exception of the one in paragraph 3 above) have also been overcome by the applicant's amendment. Claims 11-20 remain under consideration in the application.

8. Applicant's arguments with respect to claims 11-20 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin P. Kerns whose telephone number is (703) 305-3472. The examiner can normally be reached on Monday-Friday from 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (703) 308-3318. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-7718 for regular communications and (703) 305-6078 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

kpk
May 15, 2003